

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Currently Amended) A flexible interconnect structure comprising:
a flexible dielectric film having two opposed surfaces, at least a portion of said dielectric film being removed through a thickness thereof, forming a plurality of removed portions;
circuit traces disposed on at least one of said opposing surfaces, said removed portions being located where said circuit traces are not present; and
a plurality of heat sinks coupled to a surface of said dielectric film, each of said plurality of heat sinks covering a corresponding one of a plurality of removed portions and less than one of said opposing surfaces of said flexible dielectric film, such that the interconnect structure remains flexible about at least two intersecting mutually perpendicular axes.
2. (Original) The flexible interconnect structure of claim 1, wherein said dielectric film comprises a flexible material that provides electrical isolation across a thickness of said dielectric film, said material being selected from the group consisting of thermoplastic polymers, acrylic resins, polyester, polyimide, and polyetherimide.
3. (Original) The flexible interconnect structure of claim 1, wherein said dielectric film has a thickness in a range from about 1 micrometer to about 5 mm.
4. (Original) The flexible interconnect structure of claim 1 further comprising at least one electrical circuit component selected from the group consisting of resistors, capacitors, inductors, integrated circuits, and power sources.

5. (Original) The flexible interconnect structure of claim 4 further comprising a dielectric protective layer disposed to cover said electrical circuit components and circuit traces.

6. (Previously Presented) The flexible interconnect structure of claim 1, wherein said plurality of heat sinks each comprise a thermally conductive material.

7. (Original) The flexible interconnect structure of claim 6, wherein said thermally conductive material is selected from the group consisting of metals and ceramics.

8. (Previously Presented) The flexible interconnect structure of claim 1, wherein said at least one of said heat sinks has fins extending away from said dielectric film.

9. (Previously Presented) The flexible interconnect structure of claim 1, wherein at least one of said heat sinks comprises heat pipes to carry heat away from an electrical component disposed thereon.

10. (Previously Presented) The flexible interconnect structure of claim 1, wherein at least one of said heat sinks comprises a mechanism for active cooling.

11. (Original) The flexible interconnect structure of claim 10, wherein said active cooling is effected by a mechanism selected from forced cooling, refrigeration, and heat transport by Peltier effect.

12. (Previously Presented) The flexible interconnect structure of claim 1, wherein at least one of said heat sinks covers a plurality of said removed portions.

13. (Previously Presented) The flexible interconnect structure of claim 1, wherein at least one of said plurality of heat sinks comprises a body made of a material selected from the group consisting of metals and ceramics.

14-27. (Cancelled).

28. (Withdrawn – Currently Amended) The ~~electrical device~~ combination of claim ~~[[27]] 73~~, wherein said at least a light-emitting element is disposed in a reflective cup that is attached to said at least ~~[[a]] one~~ heat sink in thermal contact therewith through said corresponding removed portion.

29. (Withdrawn – Currently Amended) The ~~electrical device~~ combination of claim ~~[[27]] 28~~, wherein said reflective cup contains a mixture of a substantially transparent resin and at least a photoluminescent material that is capable of absorbing a portion of a first electromagnetic ("EM") radiation emitted by said ~~[[LED]]~~ light-emitting element and converting said portion of said first EM radiation to a second EM radiation having a different wavelength range.

30-42. (Cancelled).

43. (Withdrawn – Currently Amended) The ~~electrical device~~ combination of claim ~~[[42]] 74~~, wherein said at least a light-emitting element is disposed in a reflective cup that is attached to said at least ~~[[a]] one~~ heat sink in thermal contact therewith through said at least a corresponding removed portion.

44. (Withdrawn – Currently Amended) The ~~electrical device~~ combination of claim 43, wherein said reflective cup contains a mixture of a substantially transparent resin and at least a photoluminescent material that is capable of absorbing a portion of a first EM radiation emitted by said light-emitting element and converting said portion of said first EM radiation to a second EM radiation having a different wavelength range.

45-57. (Cancelled)

58. (Withdrawn – Currently Amended) The flexible interconnect structure of claim 1, further comprising:

a second flexible dielectric film ~~flexible dielectric film~~ having two opposed surfaces, at least a portion of said second dielectric film being removed through a thickness thereof, forming at least a removed portion;

circuit traces disposed on at least one of said surfaces of said second dielectric film;

electrically conducting connections between said circuit traces of said first and second flexible dielectric films; and

an electrically insulating layer disposed between said first and second flexible dielectric films.

59. (Withdrawn – Currently Amended) The flexible interconnect structure of claim 58, wherein an area of said at least a removed portion of said first dielectric film and an area of said at least a removed portion of said second dielectric film coincide, and a portion of said electrically insulating layer between said removed portion is removed.

60. (New) A flexible interconnect structure comprising:

a flexible dielectric film having two opposed surfaces, at least a portion of said dielectric film being removed through an entire thickness thereof, forming a plurality of removed portions;

circuit traces disposed on at least one of said opposing surfaces, said removed portions being located where said circuit traces are not present; and

a plurality of heat sinks coupled to a surface of said dielectric film, a first of said plurality of heat sinks covering at least one of said plurality of removed portions and less than one of said opposing surfaces of said flexible dielectric film, a second of said plurality of heat sinks covering at least one of said plurality of removed portions and less than one of said opposing surfaces of said flexible dielectric film, and a third of said plurality of heat sinks covering at least one of said plurality of removed portions and less than one of said opposing surfaces of said flexible dielectric film, the first heat sink being spaced from the second heat sink in a first direction and the first heat sink being spaced from the third heat sink in a second direction that is not parallel to the first direction.

61. (New) The flexible interconnect structure of claim 60, wherein said dielectric film comprises a flexible material that provides electrical isolation across a thickness of said dielectric film, said material being selected from the group consisting of thermoplastic polymers, acrylic resins, polyester, polyimide, and polyetherimide.

62. (New) The flexible interconnect structure of claim 60, wherein said dielectric film has a thickness in a range from about 1 micrometer to about 5 mm.

63. (New) The flexible interconnect structure of claim 60 further comprising at least one electrical circuit component selected from the group consisting of resistors, capacitors, inductors, integrated circuits, and power sources.

64. (New) The flexible interconnect structure of claim 63 further comprising a dielectric protective layer disposed to cover said electrical circuit components and circuit traces.

65. (New) The flexible interconnect structure of claim 60, wherein said plurality of heat sinks each comprise a thermally conductive material.

66. (New) The flexible interconnect structure of claim 65, wherein said thermally conductive material is selected from the group consisting of metals and ceramics.

67. (New) The flexible interconnect structure of claim 60, wherein at least one of said heat sinks has fins extending away from said dielectric film.

68. (New) The flexible interconnect structure of claim 60, wherein at least one of said heat sinks comprises heat pipes to carry heat away from an electrical component disposed thereon.

69. (New) The flexible interconnect structure of claim 60, wherein at least one of said heat sinks comprises a mechanism for active cooling.

70. (New) The flexible interconnect structure of claim 69, wherein said active cooling is effected by a mechanism selected from forced cooling, refrigeration, and heat transport by Peltier effect.

71. (New) The flexible interconnect structure of claim 60, wherein at least one of said heat sinks covers a plurality of said removed portions.

72. (New) The flexible interconnect structure of claim 60, wherein at least one of said plurality of heat sinks comprises a body made of a material selected from the group consisting of metals and ceramics.

73. (New) The flexible interconnect structure of claim 1 in combination with at least a light-emitting element selected from the group consisting of light-emitting diode ("LED"), laser diode ("LD"), and combinations thereof, said at least a light-emitting element being attached to at least one of said plurality of heat sinks in thermal contact therewith through said corresponding removed portion, said at least a light-emitting element being electrically connected to said circuit traces.

74. (New) The flexible interconnect structure of claim 60 in combination with at least a light-emitting element selected from the group consisting of light-emitting diode ("LED"), laser diode ("LD"), and combinations thereof, said at least a light-emitting element being attached to at least one of said plurality of heat sinks in thermal contact therewith through said corresponding removed portion, said at least a light-emitting element being electrically connected to said circuit traces.